

REMARKS

This Amendment is in full and timely response to the nonfinal Office Action dated March 14, 2002. Reconsideration of the rejections is respectfully requested in view of the foregoing amendment and the following remarks.

Claim 13 has been amended by this amendment. Claims 1 to 18 remain pending in this application. Claims 1 to 6 were indicated on page 1 of the Office Action as being allowed. Claims 7 to 18 are subject only to a rejection under 35 U.S.C. 251, as explained below.

Claim 13 has been amended to more accurately recite the self-operational arc of the Applicants' invention. Specifically, claim 13 has been amended to change the phrase "to a first state of said two states" into --from a first state among the plurality of states to said first state--. As amended, the language of claim 13 corresponds more closely to the language found in claim 5 of the '527 patent.

In section 1 on page 2 of the Office Action, the Examiner states:

In view of the surrender of original Patent No. 5,870,527 and the granting of *Reissue* Patent No. 5,870,527 which issued on February 9, 1999 all subsequent proceedings in this *reexamination* will be based on the *reissue patent claims*.

This statement by the Examiner is not understood and appears to be erroneous in several respects. For example, there has not yet been a surrender of original U.S. Patent No. 5,870,527 ("the '527 patent"). The Assignee has merely offered to surrender the '527 patent, as stated in its Consent of Assignee and Offer to Surrender Patent dated February 5, 2001, and filed with the reissue application. Moreover, there has not been a "granting of Reissue Patent No. 5,870,527." The '527 patent was issued as an original letters patent on February 9, 1999, and not as a reissue patent. Finally, this is not

a “reexamination” application, and it is not understood what is meant by the Examiner’s statement that “subsequent proceedings in this *reexamination* will be based on the *reissue patent claims*.” Clarification of these matters is respectfully requested.

Claims 7 to 18 stand rejected under 35 U.S.C. 251 as allegedly being an improper recapture of claimed subject matter surrendered in the application for the patent upon which the present reissue is based. This rejection is respectfully traversed for the following reasons.

The Federal Circuit has set forth a three-step approach to follow in applying the recapture rule of 35 U.S.C. 251. Pannu v. Storz Instruments, 258 F.3d 1366 (Fed. Cir. 2001); In re Clement, 131 F.3d 1464, 45 USPQ2d 1161 (Fed. Cir. 1997). The first step in applying the recapture rule is to “determine whether and in what ‘aspect’ the reissue claims are broader than the patent claims.” 258 F.3d at 1371; 131 F.3d at 1468, 45 USPQ2d at 1164. “The second step is to determine whether the broader aspects of the reissue claims relate to surrendered subject matter.” Id. The third step is to “determine whether the surrendered subject matter has crept into the reissue claim.” Id. It is respectfully submitted that using this three-step approach and applying the recapture doctrine in a manner consistent with prior court cases will show that the present reissue claims do not violate the recapture rule of 35 U.S.C. 251.

The pending reissue claims 7 to 12 and 14 to 18 are materially broader than claims 1 to 5 of the ‘527 patent on which this reissue application is based. Specifically, the pending reissue claims 7 to 12 and 14 to 18 are broader than independent claims 1 and 4 of the ‘527 patent because they do not include the limitation of a “self-operational arc.” The “self-operational arc” limitations were added to claims 1 and 4 during the prosecution of the ‘527 patent to overcome the Examiner’s prior art rejection based on U.S. Patent No. 5,550,953 issued to Searji (“Searji”) and U.S. Patent No.

5,519,814 issued to Rodriguez et al. ("Rodriguez et al."). Thus, at least a portion of the broader aspects of the pending reissue claims 7 to 12 and 14 to 18 relate to surrendered subject matter because the limitations removed from the reissue claims were the same limitations added to overcome the prior art rejection based on Searji and Rodriguez et al. in the parent application. If this broadening of the reissue claims was the only change from the patent claims, the recapture rule would apply and the claims would be properly rejected under 35 U.S.C. 251. However, this is not the case.

The reissue claims 7 to 18 are different from the canceled or surrendered claims in the parent application because they include additional narrowing limitations that make the claims allowable. For example, claim 7 recites, among other things, the program step of "selecting one operation based on a predetermined probability from among operations described in an operation state model that describes operational states of said robot." This program step is not included among the subject matter surrendered in the '527 patent and is believed to be an allowable limitation of the claim.

Similarly, claims 8 and 10 recite, among other things, the program step of "defining, in a status transition model ... at least one operational arc showing the operation of said robot when passing between the two states." This program step is not included among the subject matter surrendered in the '527 patent and is believed to be an allowable limitation of the claim.

Claim 9 recites, among other things, the program step of "randomly selecting one operation from among operations described in an operation state model." This program step is not included among the subject matter surrendered in the '527 patent and is believed to be an allowable limitation of the claim.

Claim 11 recites, among other things, the limitation of a "storage means for storing an operational state model that defines operational states of said robot." This

limitation is not included in the original claims of the '527 patent and is believed to be an allowable limitation that defines over the prior art.

Claim 12 depends upon claim 11 and avoids the recapture rule for at least the same reasons explained above regarding claim 11.

Claim 13 depends upon claim 12 and, as amended by this amendment, recites the following apparatus limitation: "the operational arcs include a self-operational arc showing the operation of said robot when returning from a first state among the plurality of states to said first state." This limitation corresponds to the method step added to claim 1 of the '527 patent during the initial prosecution and also the limitation found in claim 5 of the '527 patent. Accordingly, there should be no question that the recapture rule does not apply to this claim.

Claim 14 depends upon claim 12 and recites, among other things, the limitation that "the transition probabilities are changeable." This limitation is not included in the original claims of the '527 patent and is believed to be an allowable limitation that defines over the prior art.

Claim 15 recites, among other things, the limitation of a "storage means for storing a status transition model that defines a plurality of predetermined states and a plurality of predetermined operations of said robot." This limitation is not included in the original claims of the '527 patent and is believed to be an allowable limitation that defines over the prior art.

Claim 16 depends upon claim 15 and recites, among other things, the limitation that "the weighting coefficients are dynamically changeable." This limitation is not included in the original claims of the '527 patent and is believed to be an allowable limitation that defines over the prior art.

Claim 17 recites, among other things, the method step of “selecting one operation based on a predetermined probability from among operations described in an operational state model that describes operational states of said robot.” This limitation is not included in the original claims of the ‘527 patent and is believed to be an allowable limitation that defines over the prior art.

Claim 18 recites, among other things, the method step of “defining, in a status transition model that defines a plurality of predetermined states and a plurality of predetermined operations of said robot, ... at least one operational arc.” This limitation is not included in the original claims of the ‘527 patent and is believed to be an allowable limitation that defines over the prior art.

As explained above, new claims 7 to 18 in this reissue application include narrowing limitations which are believed to define over the prior art and which were not included in the surrendered claims of the ‘527 patent. A brief discussion of the prior art references applied by the Examiner in the parent application is provided below in support of the allowability of these claims.

Searji (U.S. Patent No. 5,550,953) relates to a method of controlling a general wheeled robot provided with a manipulator and describes a problem of generating an end-effector trajectory to a certain position. Taking into consideration all actuators including wheels, the problem is solved by substituting a time-series problem of the actuators for the end-effector trajectory in a three-dimensional space. In other words, the problem is solved by adding a limitation intended to minimize the sum-of-squares of angular velocities in order that the angular velocities are minimized. The angular velocities are respectively weighed. The weighting factors are configured so as to allow a particular actuator to move fast or another particular actuator not to move fast. However, these weighting factors are not relevant to the weighting coefficients applied to arcs in a

status transition model or operational state model, as recited in the Applicants' claimed invention.

Rodriguez (U.S. Patent No. 5,519,814) relates to a robot control system for executing a simulation before actual execution. The "probability" indicated by the Examiner is such that, if the simulation result has a high probability of achieving a desired effect, the anticipated operation is implemented; otherwise another control process is performed. This probability differs from the probability used in the Applicants' invention. In the Applicants' invention, probabilities are given to arcs in the status transition model, and hence, various operations are randomly generated based on the probabilities. Therefore, the "probability" used in the Applicants' claimed invention is not relevant to the "probability" disclosed in Rodriguez.

As explained above, the narrowing limitations in the pending reissue claims should be considered by the Examiner to patentably distinguish over the Searji and Rodriguez et al. references cited during the original prosecution of the '527 patent. Thus, it is respectfully submitted that these narrowing limitations have a material aspect to them, and that the limitations are not incidental, mere verbiage, or inherent in the canceled or surrendered claims. The Applicants are not recapturing surrendered subject matter, as stated by the Examiner. Instead, the Applicants are presenting the Examiner with materially narrower claims than the claims that were canceled or surrendered during the prosecution of the '527 patent. The recapture rule does not prohibit such materially narrower claims in this reissue application.

The present case is similar to prior court cases in which no violation of the recapture rule was found. For example, in Ball Corp. v. United States, 729 F.2d 1429, 1436, 221 USPQ 289, 294-95 (Fed. Cir. 1984), the reissue claim was narrower than the canceled claims in an aspect relating to a prior art rejection and broader in an aspect

unrelated to the rejection. The court allowed the reissue claim because the patentee was not attempting to recapture surrendered subject matter. Id. In Whittaker Corp. v. UNR Industries, Inc., 911 F.2d 709, 15 USPQ2d 1742 (Fed. Cir. 1990), the court held that a claim added to a patent during reissue is not invalid under the recapture rule when it contains a limitation making it narrower in scope than a similar claim that was canceled during the original prosecution. Similarly, the Applicants in the present case are presenting claims in this reissue application that are materially narrower in scope than the surrendered claims in the parent application. Thus, the Applicants are not trying to recapture the same claims that were canceled or surrendered during the original prosecution.

The present case is different from the prior court cases cited by the Examiner in support of the recapture rule. For example, the reissue claims in In re Clement were materially broader, and only incidentally narrower, to the claims surrendered during the prosecution. 131 F.3d at 1471, 45 USPQ2d at 1165. The reissue claims in In re Clement were broadened by removing limitations that directly related to several prior art rejections made during the prosecution. Id. Clement, however, did not add any narrowing limitations having a material aspect that would avoid the prior art rejections and that had not been considered before. The only narrowing limitation in the reissue claim of Clement was a limitation that had previously been added in another claim in an effort to overcome a prior art rejection. Id. This is different from the present case where the reissue claims have a materially narrowing limitation, not found in any of the surrendered or canceled claims in the parent application, that patentably distinguishes over the cited references.

The present case is also different from Hester Industries, Inc. v. Stein, Inc., 142 F.3d 1472 (Fed. Cir. 1998), in that there has been no showing that any arguments

made during the prosecution of the parent application were sufficient to trigger the recapture rule. In Hester, the court held that surrender of claimed subject matter can occur through arguments alone. 142 F.3d at 1480, 46 USPQ2d at 1648. This holding is not relevant to the present case where the Examiner has not identified any surrendered subject matter in the Applicants' arguments in the parent application.

Finally, the Examiner's attention is directed to Section 1412.02 of the Manual of Patent Examining Procedure (the "M.P.E.P."), which provides relevant guidelines for the Examiner in considering "recapture" issues under 35 U.S.C. 251. These guidelines provide, in part:

If the broadening aspect of the reissue claim relates to subject matter previously surrendered, the examiner must determine whether the newly added narrowing limitation in the reissue claim modifies the claim such that the scope of the claim no longer results in a recapture of the surrendered subject matter. If the narrowing limitation modifies the claim in such a manner that the scope of the claim no longer results in a recapture of the surrendered subject matter, then there is no recapture.

As explained above, the narrowing limitations found in reissue claims 7 to 12 and 14 to 18 make the claims patentable over the Searji and Rodriguez et al. references. Thus, it is respectfully submitted that the M.P.E.P., as well as the prior court cases discussed above, support the Applicants' position that there is no improper recapture in the present case.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejections of claims 7 to 18 based on the recapture rule under 35 U.S.C. 251. It is respectfully submitted that this reissue application is now in condition for allowance. Early issuance of a Notice of Allowance is respectfully requested.

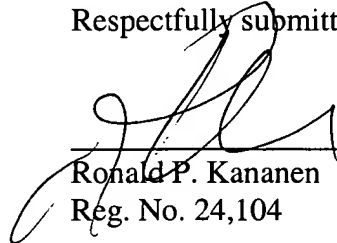
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REISSUE APPLICATION

If the Examiner has any questions or comments that could place this application into even better form, he is encouraged to contact the Applicants' undersigned representative at the number listed below.

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Respectfully submitted,



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